

ART. I.—*Notes on West Australian Oology, with
Descriptions of New Eggs.*

(With Plates I and II.)

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Having recently devoted myself to nearly four months of scientific research, particularly with reference to field work, in Western Australia, I desire to lay before this Society the following oological notes. Further, at this juncture, the notes may be deemed the more valuable, because the "West Australian Constitution Bill," now before the Imperial Parliament, is directing attention to the great western territory, from whence any knowledge is of peculiar interest at present.

Astur cruentus, Gould (West Australian Goshawk).—Eggs roundish in shape, bluish-white, with dull surface. In a clutch of two, one specimen possesses a few smudges of reddish-brown. Dimensions—(1) 4·4 x 3·46 cm., (2) 4·33 x 3·43 cm. These examples are from the Champion Bay District. I did not take them personally, but have no doubt of their identity. Gould states that this goshawk breeds during October and the two following months, making a nest of dead sticks on the horizontal fork of a mahogany (*Eucalypt*) tree.

Podargus brachypterus, Gould (Short-winged Podargus).—Eggs pure white, long oval in shape; texture of shell fine, with slightly lustrous surface. One example, from a clutch of two, measures 4·44 x 2·96 cm. They were taken 21st October with the nest (a thick platform of twigs, &c.), about 10 or 12 feet from the ground, in a paper-bark tree (*Melaleuca*), at Quindalup. This podargus sometimes places its nest in the fork of a grass tree (*Xanthorrhœa*), as well as in eucalypts. Dimensions of nest about 25 cm. in diameter, by about 5 cm. in thickest part.

Strepera plumbea, Gould (Leaden-coloured Crow-shrike).—A pair of eggs I took at Hamelin Harbour are of the usual

longish form, deep reddish-buff or brown, marked over the whole of the surface in an indistinct manner with a darker colour. Dimensions—(1) 4.53 x 2.97 cm., (2) 4.67 x 2.97 cm. Clutch usually three eggs. A specimen from the Champion Bay District is much lighter in colour, resembling those of *S. fuliginosa* of Tasmania, with smaller dimensions, namely 4.25 x 3.07 cm. But whether the variation in colour is caused by different food or specific difference, has yet to be ascertained. Colonists in Western Australia aver there are two species. I was disappointed I did not succeed in procuring a skin of the Northern bird. The nest taken at Hamelin, 17th October, was situated in the forked branches of a peppermint tree (*Agonis*). The structure was of tough twigs, firmly lined with grass, and measured 46 cm. over all, with an egg cavity 18 cm. across the mouth, by about 8 cm. deep.

Gymnorhina (sp.?) (Western Crow-shrike).—Believing the Western magpie to be different from either of the Eastern birds (*G. tibicen* and *G. leuconota*), I give a description of its nest and eggs, which however, closely resemble those of its allies. Nest is constructed of sticks and twigs, and lined first with bark, then with a ply about $2\frac{1}{2}$ cm. in thickness of finer bark. Measurements over all about 30 cm., egg cavity 15 cm. across, by about $6\frac{1}{2}$ cm. deep. The eggs, generally three in number, are very beautiful, resembling those of *G. tibicen* taken in Queensland. They are streaked or marbled with rich pinkish brown, upon a bluish or French grey ground. Dimensions—(1) 3.96 x 2.8 cm., (2) 3.86 x 2.76 cm., (3) 4.33 x 2.68 cm. September, October, and November, constitute the chief breeding months.

Pachycephala occidentalis, Ramsay (Western Thick-head).—In *Nests and Eggs* (1883), I adopted Gould's description; but since the Western is found to differ from the Eastern variety, and as some doubts exist as to which Gould described his eggs from, I have deemed it requisite to re-describe the eggs, together with a nest I took at Karridale, 28th October. The nest is firmly woven of grass and the soft green leaves of a certain plant, and lined with fine grass. Dimensions—about 9 cm. across, with a fairly sized egg cavity about $6\frac{1}{2}$ cm. across the mouth, by 4 cm. deep. The whole securely set among the branches and seed pods of a *Hakea*. The eggs are light yellowish-white, of a darker shade about the upper quarter, where are spots of umber and dull grey,

the latter appearing as if under the surface of the shell. Texture of shell somewhat fine. Specimens long in shape, with both ends nearly alike. Clutch two; measurements—(1) 2.48 x 1.6 cm., (2) 2.47 x 1.6 cm.

Sphenostoma cristata, Gould (Crested Wedge-bill).—I have received several undoubted examples of the egg of this bird from the Gascoyne District, therefore, the habitat of the bird may now be extended to Western Australia.

Gerygone culicivora. Gould (Western Warbler).—Gould described accurately the position and structure of this bird's nest, but did not succeed in procuring the eggs, which are warmish-white, spotted especially at the larger end with reddish or pinkish-brown, after the fashion of the *Maluri* eggs. An egg, from a set of three, measures 1.7 x 1.17 cm. The nest was taken at Quindalup (Geographé Bay), from the topmost branches of a peppermint tree (*Agonis*), in September.

Eöpsaltria georgeana, Q. et Gaim. (White-bellied Robin).—Exceedingly little is known of this rare robin. The first nest that came under my observation was in a sheoak (*Casuarina*) sapling, bordering a creek in close proximity to the Tor Bay Timber Station, owned by Messrs. C. and E. Millar of this city. The second nest I took was in a thick forest, artfully hid in the fork of a grass tree (*Xanthorrhœa*), where the drooping rush-like foliage carefully concealed it. The nest is built of leaves, fine twigs and strips of bark, and lined with fine rootlets and grass. The specimen taken from the *Casuarina* was decorated outwardly with pieces of dead bracken fronds. Across, the measurement was about 9 cm., egg cavity 5 cm. by 3 cm. in depth. In each instance, the eggs were two, of a beautiful olive-green, one out of each set had a distinct bronzy shade upon the apex. Dimensions—*a* (1) 2.2 x 1.56 cm., (2) 2.13 x 1.52 cm.; *b* (1) 2.11 x 1.53 cm., (2) 2.06 x 1.55 cm.

It will be noticed that the nest and eggs of the White-bellied Robin, most resemble those of the Dusky Robin (*Amourodryas vittata*) of Tasmania, and are totally unlike the *Eöpsaltria*; therefore, it may be found necessary, now that the nest and eggs have been discovered, to alter the generic name of the former bird.

Estrilda oculoa, Q. et Gaim. (Red-eared Finch).—Nest of the usual bottle-shaped appearance, with the entrance through the neck slightly ascending before dropping into the egg chamber, or body of the nest. The structure is bulky,

consisting chiefly of a wiry grass (*Calamagrostis*), and lined with brittle material and downy seed vessels. Situation chosen, generally *Melaleuca* trees on the margin of streams or swamps, sometimes *Banksias* or other thick bush. Eggs soft white: complement 4 or 5. Dimensions of two examples—(1) 1.73 x 1.22 cm., (2) 1.78 x 1.22 cm.

Cacatua gymnopsis, Selater (Dampier's Cockatoo).—Eggs whitish, rather pointed towards the smaller end. Texture of shell somewhat granulated. Clutch is four in number.* Mr. Woodward, F.G.S., informed me he had witnessed aboriginals taking these cockatoos from the hollow of flooded gums on the Dalgety Creek, Gascoyne District. Young in down have been seen on the Upper Murchison in April, while Mr Mackenzie Grant, M.L.C., and others, state that numbers of these birds breed under rocks on Dampier's Archipelago off Nishol Bay. Although this cockatoo was only described by Selater in 1871, it is really the oldest known of all the Australian cockatoos. Dampier, in August 1699, when in the vicinity of the Archipelago which now bears his name, recorded there was "a sort of white parrots which flew a great many together," and which undoubtedly refers to the bird now under consideration. Therefore, as a vernacular name for this interesting cockatoo, and as there are many inappropriate local appellations, I have taken the liberty of adopting the name of the celebrated navigator.

Platycercus concinnus, Shaw (Banded Parrakeet).—I was somewhat astonished to fall in with this beautiful parrot in the Champion Bay District. To Miss N Logue, of Ellendale, I am indebted for an egg, and also to Mr R. H. Cowan, for his assistance in aiding me to procure a series of skins. The egg which is white, was taken from a hollow eucalypt bordering the Greenough River, and measures 2.84 x 2.35 cm.

Euphonia petrophila, Gould (Rock Parrakeet).—Eggs of a fine texture, white, round in form, but some examples inclined to oval. A full clutch of 4 measures (1) 2.45 x 1.9 cm., (2) 2.42 x 1.94 cm., (3) 2.5 x 1.98 cm., (4) 2.45 x 1.9 cm.

I was singularly successful in securing a series of the eggs of this comely little parrakeet on Rottnest Island, where the birds breed (without any nest) under shelving or flat sand, or lime-stones, but invariably selecting rocky islets off the main island, notably Green or Parrakeet Island. It gives me pleasure to state, that Mr A. H. Courderôt, a

* One Example measures 4 x 2.50 cm.

corresponding member of this Society, was the first to present me with the eggs of this graceful parrakeet, also with a pair of live birds which now adorn my aviary.

Synoicus sordidus, Gould (Sombre Swamp-Quail).—Eggs pyriform, of a dirty yellowish-white, minutely spotted all over with dull green or olive. Markings more assimilate those of the Tasmanian, and are a little bolder than the common swamp quail's (*S. australis*). Shells very thick. Complement of eggs, 8 to 10. Dimensions—(1) 3.04 x 2.46 cm., (2) 3.24 x 2.45 cm., (3) 3.16 x 2.44 cm.

On a visit to Breaksea Island, at the entrance to King George's Sound, I found this quail plentiful, and although late in the season (2nd January), the lighthouse keepers pointed out a nest containing nine eggs, and kindly permitted me to remove three for scientific purposes. The nest was a little hollow, lined with dead grass and sheltered under a tussock of grass amid rushes.

Biziura lobata, Shaw (Musk Duck), invariably lays a pair of eggs on the Eastern portion of Australia and Tasmania, yet, however remarkable and unaccountable it may seem, the complement is three in Western Australia. I heard of several nests with that number, and took one myself in a *Melaleuca* swamp at Karridale.

Sterna dougalli, Mont. (Graceful Tern).—Eggs rather round in form; colour varies from greyish to warm stone colour, boldly marked with spots and blotches of a dark amber, patches of grey also appearing under the surface of the shell. Clutch, two eggs. Dimensions—*a* (1) 3.8 x 2.93 cm., (2) 3.82 x 2.94 cm.; *b* (1) 3.96 x 2.82 cm., (2) 3.93 x 2.82 cm.

Gilbert, the able coadjutor of Gould, did not succeed in procuring eggs, but was informed that these terns breed in November. The following extract from my note-book would make it appear that December was the chief laying month:—"Graceful terns in companies of scores, found nesting on parallel dead coral ridges, Pelsart Island, Houtman's Abrolhos, 23rd December, 1889. Birds uttering usual shrieking cries. Eggs two, but sometimes one, the nest being a hollow made in the rough coral filled with finer coral, shells, &c. Coral, not the usual cream colour or white, but bluish-grey, as if by long exposure to the elements, and sustaining patches of lichen (*Leucider*). On another ridge adjacent, were a few ternlets (*Sterna nereis*) breeding; also two eggs, sometimes one. Young in down

whitish, with pale-yellow feet and bill. Young in down of graceful tern white underneath, rest of surface slightly mottled; feet and bill pink. Eyes dark in both species."

In conclusion, I should like to record the dates and breeding localities of two petrels.

First.—The Fleishy-footed Petrel (*Puffinus carneipes*, Gould), which I found breeding on Breaksea Island, King George's Sound. The first eggs were noticed by the lighthouse keepers on 30th November, and were plentiful on 7th December. The same dates apply to Mutton-bird Island, Tor Bay, where some eggs were also collected on the mainland. This is the first instance, as far as I am aware, of petrels laying on the mainland of Australia. They invariably resort to isolated rocks or islands for the purpose of breeding. The burrows of the fleshy-footed petrels are mostly tunnelled in sandy soil, in an oblique direction from four to six feet, but sometimes to the depth of eight feet.

Second.—The Wedge-tailed Petrel (*Puffinus sphenurus*, Gould).—I first made the acquaintance of this nocturnal creature on Rottneest Island, where I obtained a couple of eggs on 22nd November. When I reached Rat Island (Houtman's Abrolhos), I ascertained the first eggs there were discovered in the burrows on 17th November, while the majority of eggs were collected the following week.

Some of the islands of the Abrolhos, which are about fifty miles off Champion Bay, for prodigious numbers of birds, brought to my recollection the journey of the Israelites, when quail fell among them. Truly it seemed to me, when upon Rat Island, that the face of the earth, as well as the sea, was covered with birds, "as it were a day's journey on this side, and as it were a day's journey on the other side," round about our camp. For there were noddy terns breeding as close as they could pack upon the bushes, sooty terns were croaking over their task under the bushes, while the ground underneath was honeycombed with petrels, moaning and groaning, especially at night, when it might be readily said, the whole island "groaneth and travaileth in pain."

Mr. G. K. Beddoes, C.E. (Manager of the Guano Station), and I, calculated that there were about 300 acres of Rat Island occupied by birds, and that they averaged at least one bird for every square yard, giving a total of 1,452,000 birds for one small island alone. Some of the photographs, exhibited to-night, will give a very fair idea of the flights and multitude of birds.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.



Fig. 9.